GEOGRAPHIC SUBREGIONS

The original organizational options included a large regional system, or possibly a utility-based infrastructure. Shortly after concluding the supply/demand analysis, it was determined that a subregional analysis would be the best option for evaluation. One large regional system would create an additional layer of management that would add unnecessary complexities to the project. A utility-by-utility basis would likely come up with alternatives that are similar to those presented here, but would neglect the option of sharing water when one utility is in surplus and another is in deficit. Therefore, the subregional approach was established to be the best solution to peak dry season demands while taking into account the seasonal variability of water demands seen in South Florida. Alternatives for each subregion consist of both surface water and reclaimed water ASR, interconnects between utilities, and water withdrawal from area mine pits.

The criteria for the subregional groupings were:

1. Common utility ownership
2. Existing relationships between utilities including existing interconnects
3. Projected irrigation needs
4. Potentially available supplemental sources of supply
5. Feasibility of utilizing the potential supply options by certain utilities without an interconnect

The five subregions are:

1. Cape Coral, Waterway Estates, and North Ft. Myers
2. Ft. Myers Central, Ft. Myers South, Gateway, and Lehigh Acres
3. GES, Fiesta Village, and Ft. Myers Beach
4. North Collier County, Pelican Bay, and Bonita Springs
5. Naples, South Collier County, and Marco Island

An illustration of the five subregions can be seen in Figure 28.

All alternatives within the five subregions for ASR, interconnects, and mine pit withdrawal have been generally located and are shown in Figures 29 through 33.

Cape Coral, Waterway Estates, and North Ft. Myers

In this subregion, three locations for surface water ASR were sited. These include withdrawing water from Gator Slough, Horseshoe Canal, and Hermosa Canal. For Gator Slough, it is estimated that 9 wells and a pumping station could be put into service to withdraw approximately 7 MGD. Horseshoe and Hermosa Canals would both have 4 wells and a pumping station and could supply 3 MGD each. Additionally, a possible site for reclaimed water ASR is located within the City of Cape Coral and consists of 3 wells and a pumping station. The reclaimed water ASR would result in about 2 MGD of additional water during the dry season.

There is also a possible site for an interconnect between Cape Coral and North Ft. Myers that would allow water to be shared between the two systems.

Finally, there are 3 mine pits just north of the Lee County line from which water could be extracted to feed into the reclaimed system after mining operations have ceased. This practice has a precedent in Collier County, where water is taken from Mule Pen Quarry and fed directly into the reuse system to supplement irrigation needs. It is estimated that withdrawal from the Limerock, Jay Rock, and Babcock Mine Pits would result in approximately 3.4 MGD of supplementary water.

Taking a sum of these options results in roughly 18.4 MGD of additional water resources for the area. This is equal to a cost of $0.48 per thousand gallons of water.

Ft. Myers Central, Ft. Myers South, Gateway, and Lehigh Acres

A potential reclaimed water ASR site is located within Ft. Myers and consists of 12 wells and a pumping station. The reclaimed ASR would supply an additional 9 MGD of irrigation water during the dry season.

There is also a possible interconnect that would allow water to be disposed of by Lehigh Acres and Ft. Myers South by sending their excess reclaimed water to Gateway, which is a high growth area.

Approximately 9 MGD of supplemental water resources were identified within this subregion. This amounts to a cost of $0.57 per thousand gallons of water.

GES, Fiesta Village, and Ft. Myers Beach

A potential surface water ASR site is located in this area. Withdrawing water from Ten Mile Canal, using 16 wells and a pumping station would supply approximately 12 MGD. Additionally, there is a possible site that could be used for a reclaimed water ASR project. This is located within south Ft. Myers and consists of 7 wells and a pumping station. The reclaimed water ASR site would provide about 5 MGD of supplementary irrigation water.

There is also a possible interconnect that would allow water to be disposed through a series of systems and sent south down I-75 to the GES service area, which suffers from large water shortages during the dry season.

Totaling these options concludes that approximately 17 MGD of additional water resources can be found in this area. This is equal to a cost of $0.52 per thousand gallons of water.

North Collier, Pelican Bay, and Bonita Springs

In this subregion, three locations for surface water ASR were sited. These consist of withdrawals from the Cocohatchee Canal, Imperial River, and the Golden Gate Canal at 17th Avenue. For the Cocohatchee, it is estimated that 7 wells and a pumping station could be put into service to withdraw approximately 5 MGD. The Imperial River would have 20 wells and a pumping station, resulting in 15 MGD. With respect to the Golden Gate Canal at 17th Ave., it is estimated that 27 wells and a pumping station could be put into service to supply approximately 20 MGD. Additionally, there is a possible site that could be used for a reclaimed water ASR project. This is located north of Immokalee Road between I-75 and Tamiami Trail and consists of 6 wells and a pumping station.

The reclaimed water ASR would produce approximately 4 MGD of additional water during the dry season.

There is also a likely site for an interconnect between Bonita Springs and North Collier County, which would allow water to be shared between the two systems. This pipeline would be located along US 41 at the boundary between Lee and Collier County. An interconnect involving the Golden Gate Wastewater Treatment facility was considered, but is not economically feasible at this time, due to lack of existing infrastructure and a relatively low benefit (1 MGD). This option should be examined further in the feasibility study for this region.

During the wet season, there is an additional option of withdrawing surface water to feed directly into the reclaimed system (with proper filtration and disinfection). This could provide an additional 6 MGD of irrigation water.

Finally, there is a mine pit in the Golden Gate area that could be utilized after mining operations have ceased. This source could provide 1.5 MGD of supplementary water.

Together, these options generate nearly 51.5 MGD of additional water resources for the area. This is equal to a cost of $0.57 per thousand gallons of water.

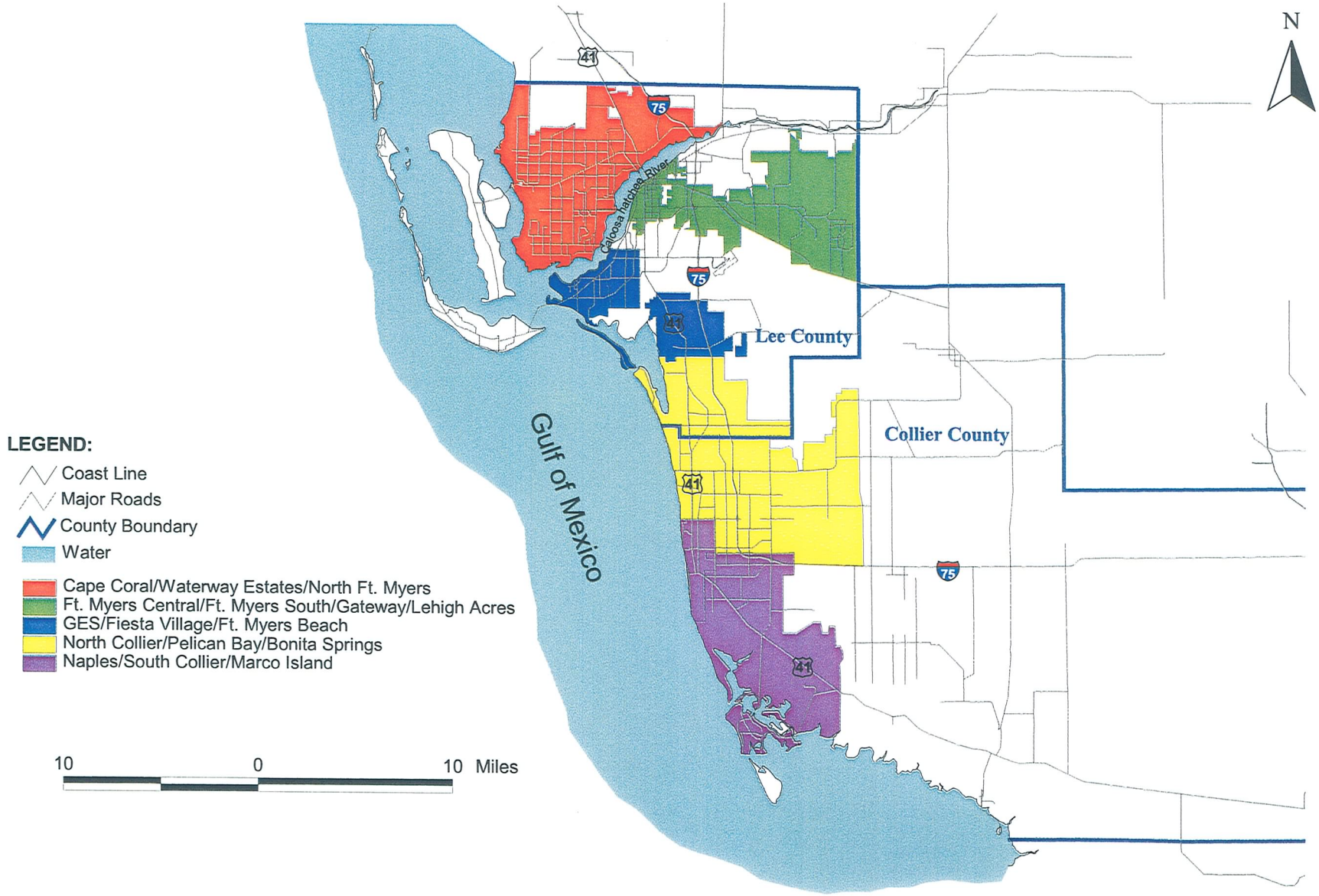
Naples, South Collier, and Marco Island

Two locations for surface water ASR were found in this subregion. These include withdrawing water from the Faka Union Canal and the Golden Gate Canal. The Faka Union Canal and the Golden Gate Canal at Airport Road would both have 34 wells and a pumping station, resulting in 25 MGD each. Additionally, there is a site that could be used for a reclaimed water ASR project. This is located within Naples at the northwest corner of Davis Boulevard and Airport Pulling Road and consists of 10 wells and a pumping station. The reclaimed water ASR system would furnish roughly 7.5 MGD of additional water during the dry season.

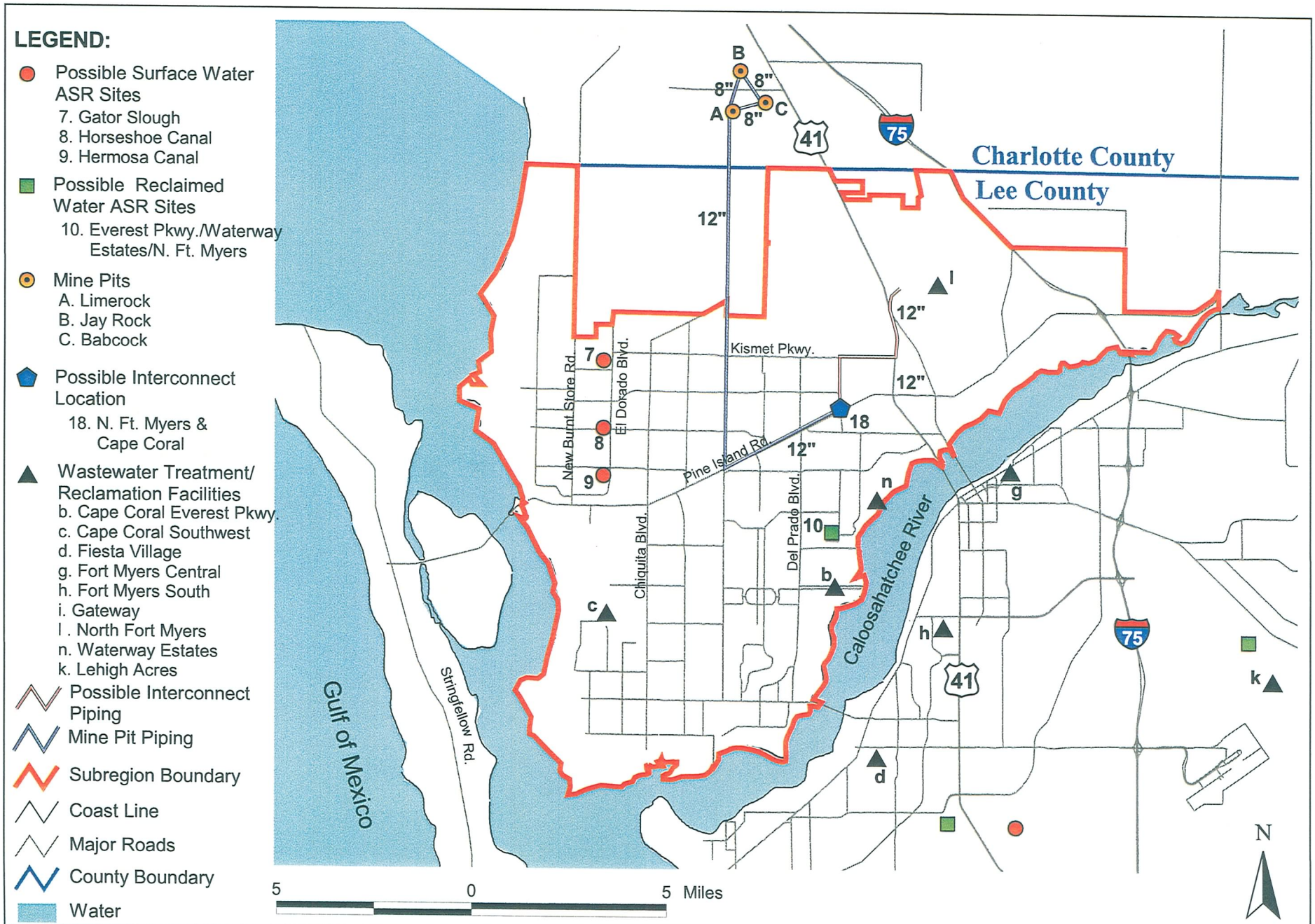
There is also an opportunity for an interconnect between Naples and South Collier, which would allow water to be shared between the two systems. A probable location for the interconnect would be at Golden Gate Parkway and Livingston.

During the wet season, there is an additional option of withdrawing surface water to feed directly into the reclaimed system (with proper filtration and disinfection). This could provide an additional 14.6 MGD of irrigation water.

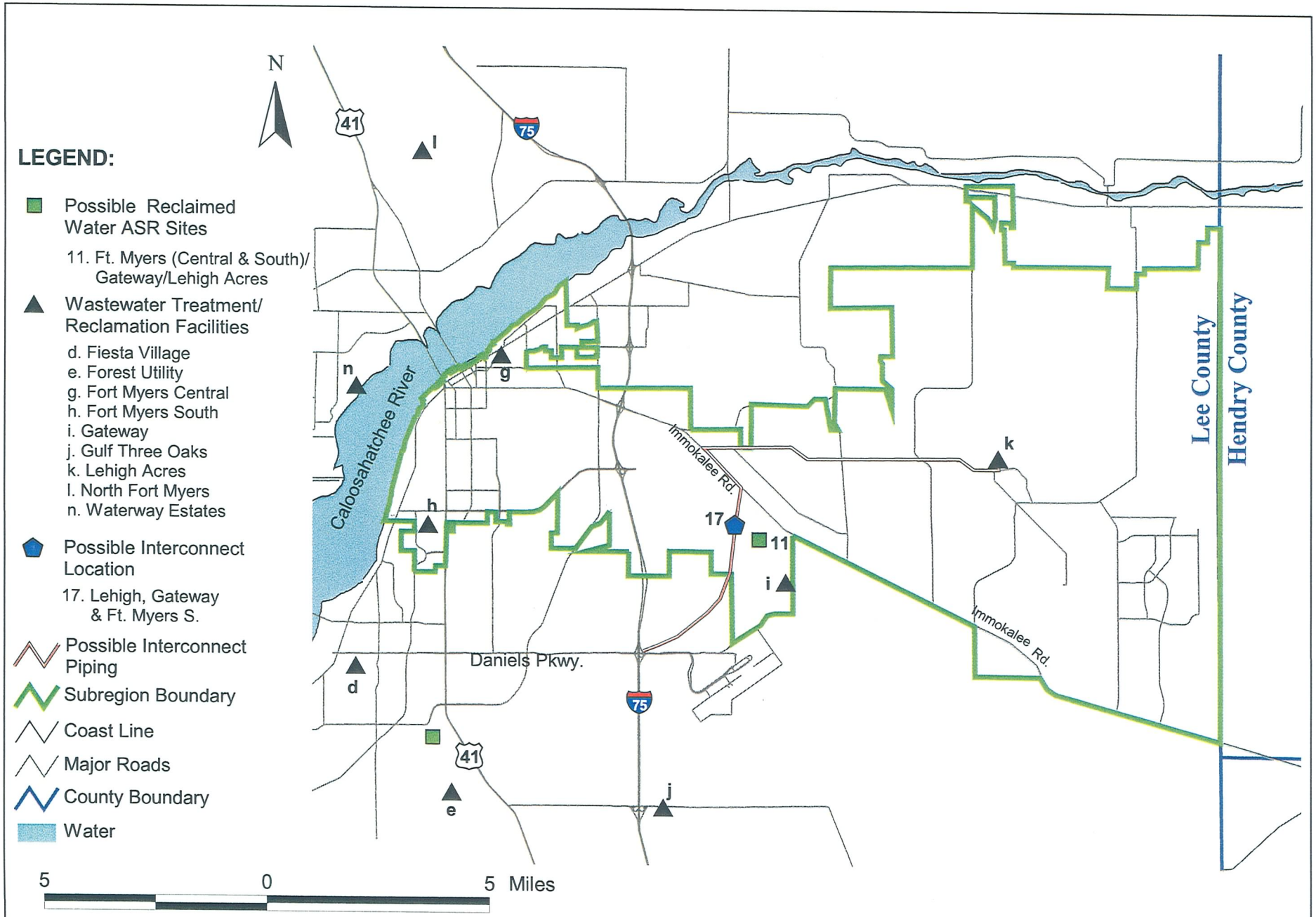
Taking a sum of these options results in a little over 72 MGD of additional water resources for the area. This is equal to a cost of $0.56 per thousand gallons of water.



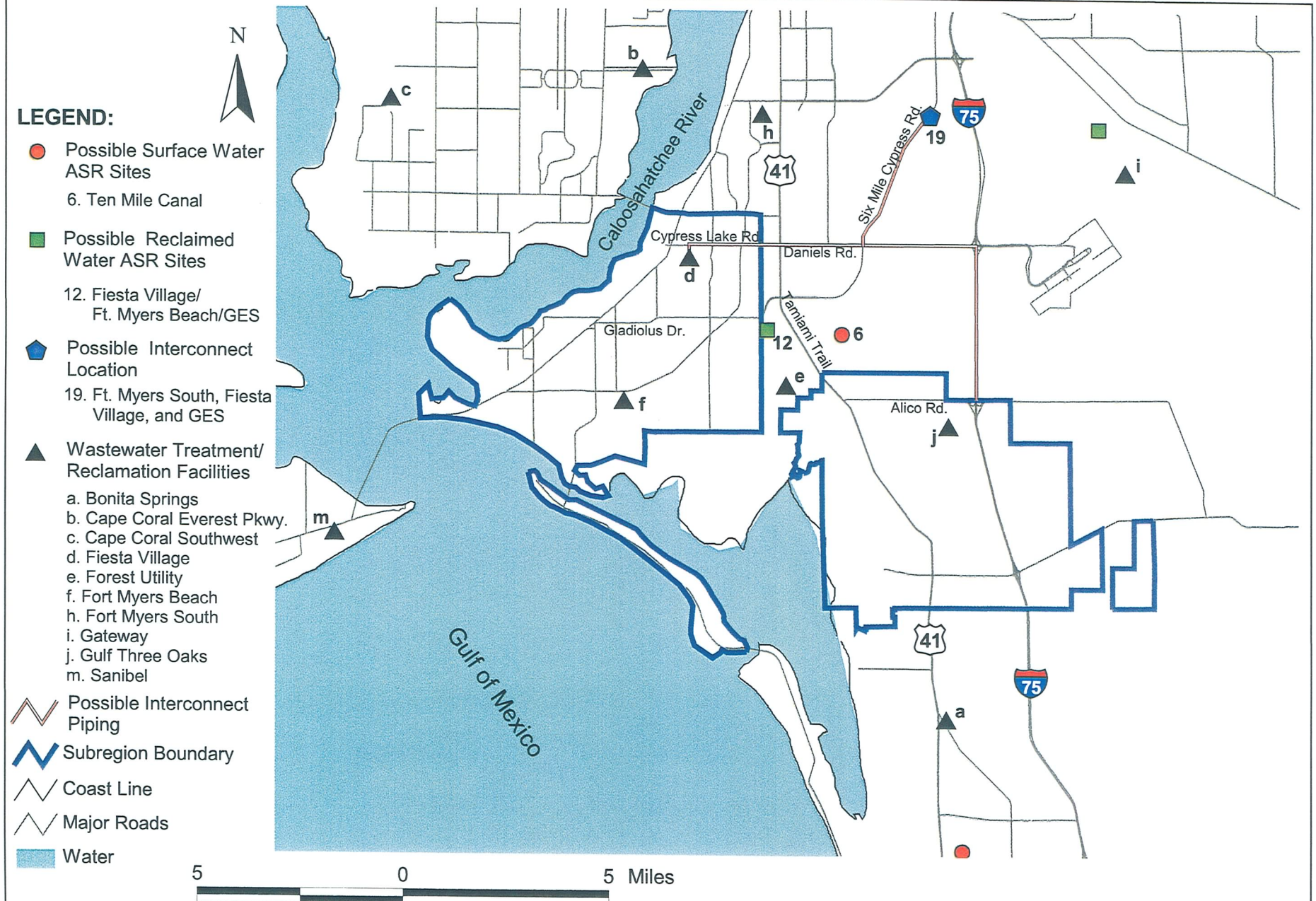
Master Plan for the Regional Irrigation Distribution System (RIDS) for the Lower West Coast Region	BOYLE	South Florida Water Management District	POTENTIAL SUBREGIONAL GROUPS	Figure 28



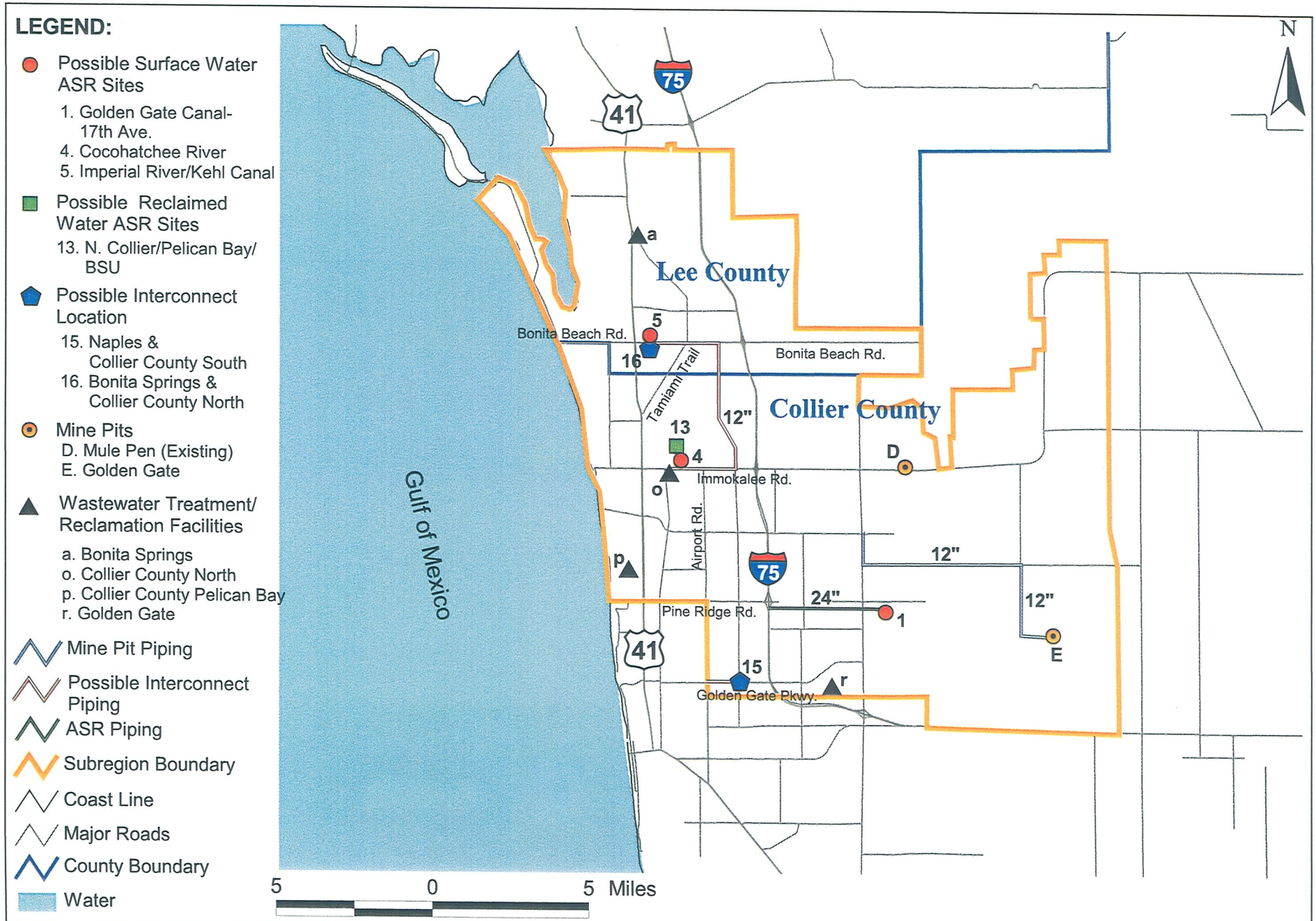
Master Plan for the Regional Irrigation Distribution System (RIDS) for the Lower West Coast Region	BOYLE	South Florida Water Management District	Cape Coral/Waterway Estates/North Ft. Myers Subregional Group	Figure 29



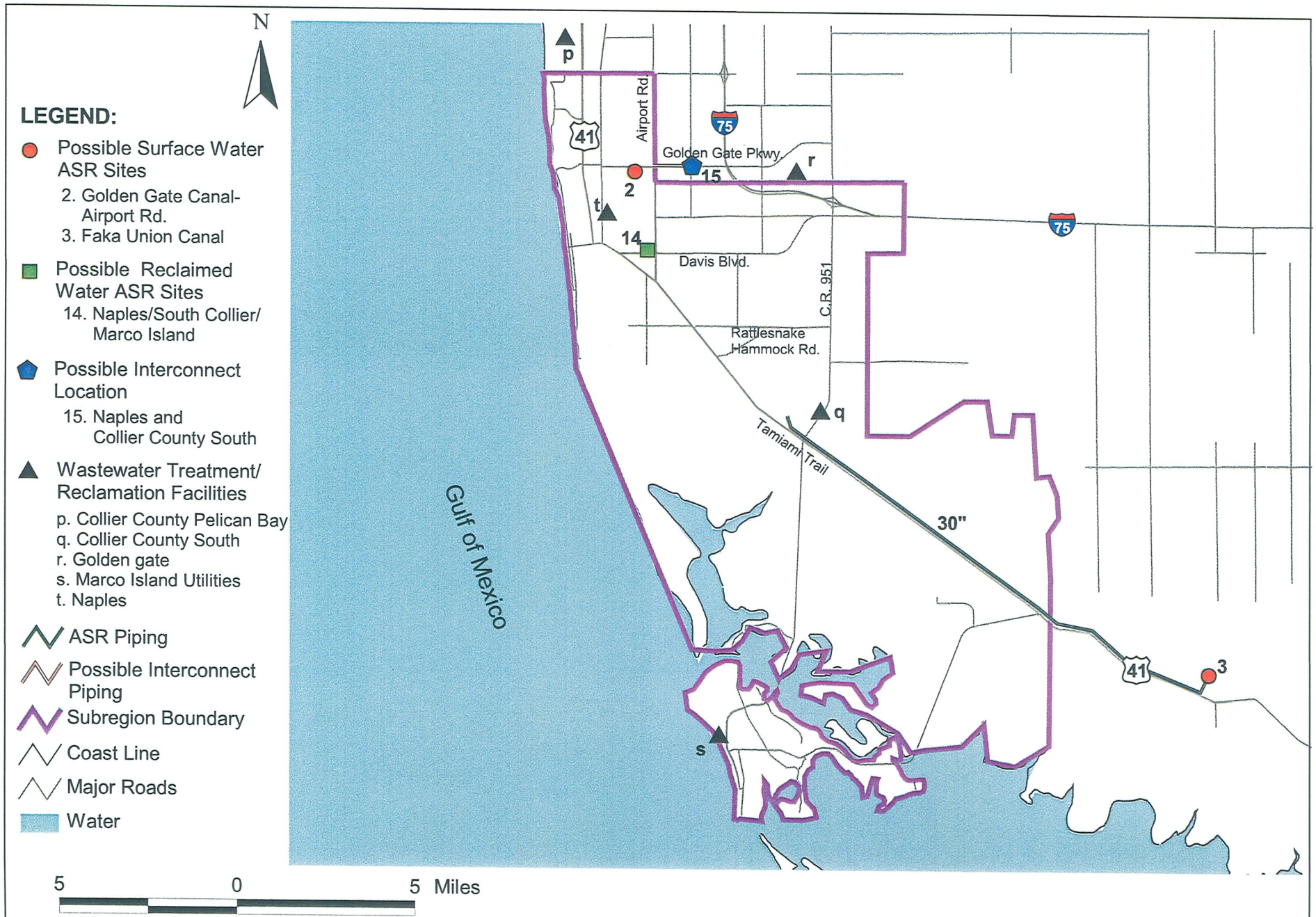
Master Plan for the Regional Irrigation Distribution System (RIDS) for the Lower West Coast Region	BOYLE	South Florida Water Management District	Ft. Myers Central/Ft. Myers South/Gateway/ Lehigh Acres Subregional Group	Figure 30



Master Plan for the Regional Irrigation Distribution System (RIDS) for the Lower West Coast Region	BOYLE	South Florida Water Management District	Fiesta Village/Ft. Myers Beach/GES Subregional Group	Figure 31



Master Plan for the Regional Irrigation Distribution System (RIDS) for the Lower West Coast Region	BOYLE	South Florida Water Management District	North Collier/Pelican Bay/Bonita Springs Subregional Group	Figure 32



Master Plan for the Regional Irrigation Distribution System (RIDS) for the Lower West Coast Region	BOYLE	South Florida Water Management District	Naples/South Collier/Marco Island Subregional Group	Figure 33